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ARGUMENT  
FOR THE  
COMPLAINANT,

IN THE CASE OF

THE STATE OF PENNSYLVANIA,

vs.

THE WHEELING AND BELMONT BRIDGE CO., AND OTHERS,

BY

MR. EDWIN M. STANTON,

IN THE SUPREME COURT OF THE UNITED STATES.

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PHONOGRAPHED BY JOHN J. McELHONE.

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PHILADELPHIA:

BROWN'S STEAM POWER BOOK AND JOB PRINTING OFFICE, LEDGER BUILDING.

1852.

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IN THE  
SUPREME COURT OF THE UNITED STATES.

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THE STATE OF PENNSYLVANIA, }  
                                  *vs.* } DECEMBER TERM, 1851.  
THE WHEELING BRIDGE COMPANY. }

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ARGUMENT OF MR. E. M. STANTON, FOR THE COMPLAINANT.

MAY IT PLEASE THE COURT :

At the December Term, 1849, this cause was referred to the Hon. R. H. Walworth, a Special Commissioner, to take testimony, and report upon two questions.

I.—Whether the Wheeling Bridge is an obstruction to vessels propelled by steam or sails, which are now, or may hereafter be engaged in the commerce and navigation of the Ohio River ?

II.—If it be an obstruction, what change can be made in the structure of the Bridge, so as to secure free navigation ?

At the close of last Term, the Commissioner made his report, deciding—

I.—That the Bridge is not an obstruction to vessels propelled by sails.

II.—That it is an obstruction to vessels propelled by steam.

III.—That a change can and should be made in the structure of the Bridge, so as to give a level headway 300 feet in width over a convenient part of the channel, not less than 120 feet above the level of zero on the Wheeling water gauge.

It would seem that the argument now should be properly confined to the questions arising upon that report. To the report, three exceptions are filed by the complainant; twelve by the defendants. The fifth, sixth and seventh of the defendants' exceptions relate to the same matters embraced in those of the complainant, and as they involve the main matters here in controversy, they may be discussed together. Before entering into their consideration, I desire briefly

to remark upon the residue of the defendants' exceptions. They relate to the manner in which the Commissioner performed his duties, and were doubtless designed, by impeaching the fairness and propriety of his conduct, to impair the weight that might otherwise be due to his opinion upon the main points of the case. But this Court having appointed, to perform the high and responsible duties of this commission, a person of long judicial experience and unquestioned integrity, who by profession and character must necessarily have been free from favor or prejudice for or against either party, it is to be presumed whatever exception or fault may now be found with his conduct, is to be attributed rather to ill-feeling, engendered by adverse opinion, than to any just ground of complaint.

Mr. Stanton then proceeded to remark, in their order, upon the defendants' exceptions to the Commissioner's conduct and proceedings. But those exceptions having been abandoned by the defendants' counsel—Mr. Reverdy Johnson stating, in his argument, that if his associate counsel had known as well as he did the ability, character and unquestionable integrity of the Commissioner, they would not have been filed—the observations of Mr. Stanton on those exceptions are omitted.

Mr. Stanton then proceeded to argue the main questions in the case.

The Commissioner having decided that the bridge is an obstruction to steam vessels, and that it ought to be elevated 28 feet, the defendants, in their fifth, sixth and seventh exceptions insist that it is not an obstruction, that it ought not to be elevated, and that the reasons assigned by the Commissioner are unsound; while upon the other hand the complainant insists that the bridge is an obstruction also to sail vessels, and that the proposed elevation is not adequate to secure free navigation. The existence and extent of obstruction, and the adequacy of the proposed remedy are, therefore, the points presented by these exceptions, and they are the same points referred to the Commissioner. In their investigation before him, the inquiry assumed a wider range than was perhaps ever before known in a judicial proceeding. They involved the commerce of many States and the regimen of great rivers, the chemical qualities of fuel, the scientific theory and practical application of heat for the generation of steam, the art of its application to navigation, the art of building bridges and ships—these were a part only of the subjects within the

scope of inquiry. Seven months were diligently employed by the Commissioner in their investigation; men of distinguished science, and many persons engaged in practical pursuits, were examined before him—some weight is due, therefore, to the conclusions he arrived at. It would be impossible, in the brief space of an argument, to impress these subjects upon the mind of the Court with the same clearness and force they presented themselves to the Commissioner, and only the leading features developed in the case can here be exhibited.

The commerce of the Ohio river is carried on chiefly by steam-boats. These are properly distributed by the Wharf-master at Wheeling into five classes. To the first class belong large boats, built at Pittsburg, which are usually engaged as packets between New Orleans, St. Louis and Louisville. The Pittsburg and Cincinnati packets compose the second class. The third class are the Pittsburg and St. Louis packets. The fourth class are transient boats of smaller dimensions, engaged in no specific trade. The fifth class are the small, low-water craft of the Ohio river and its tributaries. The fourth and the fifth class may be dismissed from the present consideration; for from their small size and the low water in which they run, the bridge can rarely offer to them any obstruction. The fourth class, or St. Louis packets, draw from three feet light to eight feet loaded, and having to pass around the Falls of the Ohio, through the Louisville Canal, their length is limited by the locks of the canal to 182 feet, and their breadth to  $49\frac{1}{2}$  feet. Their chimneys are also limited by the bridge over the canal, and they require a headway when upon the river of from 60 to 75 feet. The Pittsburg and Cincinnati packets drawing the same water as the St. Louis boats, are over 250 feet in length, more than 50 feet in breadth, and over 500 tons burthen, and they require a headway of from 70 to 85 feet above the surface of the water. These are the largest and finest vessels that navigate above the Falls. They are built with direct reference to the trade and navigation of the river, for speed and power, and combine all the qualities essential for safety, comfort and public accommodation. Each packet, on an average, costs \$40,000. Their daily expenses, while running, are \$200. They are manned with skillful officers and a crew of from 20 to 30 men, and they last five years. The New Orleans boats draw from three feet light to eight feet loaded, vary from 250 to 300 feet in length, and they

require a headway of from 80 to 95 feet above the water. From the first rude and feeble application of steam to navigation, these vessels have attained their present form and dimensions, as the joint result of practical skill and scientific principles, and in fitness for use seldom has greater perfection been achieved than is exhibited in these packets. Before the erection of the Wheeling Bridge these boats might leave Pittsburg upon the highest stage of water, and reach their destination without hindrance or obstruction, passing in their course between Wheeling and Zane's Island, through a natural channel, 980 feet wide. But now, upon any stage of water, they would be arrested in their voyage within a hundred miles of Pittsburg by the Wheeling Bridge. That bridge is suspended across the channel from iron cables like a boom. It presents the form of an inclined plane—thirty feet lower at one end than at the other. By this peculiarity of form it happens that no level headway is presented over any part of the channel, and even this limited space only exists when it is not available—when there is no water in the river, or only one foot upon the Wheeling bar. By this peculiarity of form, that also is accomplished which could have been accomplished by no other means. As the water rises, both the lateral and vertical space required for navigation is diminished, so that when the river reaches a good navigable stage of 15 feet, the available steamboat channel is contracted from 980 feet to 100 in width and 75 feet in height, through which neither the Orleans boats nor the Cincinnati packets can pass. And when the water reaches the ordinary stages, from 30 to 33 feet, even the St. Louis boats cannot get through with their chimneys standing. These facts are established beyond controversy. They are demonstrated by the Commissioner and his engineer, by actual measurement of the boats, the bridge and the river. It also appears from the testimony of Mr. Dickinson, one of the engineers who planned this bridge, that when it was planned and when that plan was adopted it was known such would be the result. As to the existence of obstruction, there would then seem to be no room for argument. But the defendants insist these facts do not properly constitute an obstruction to navigation, because, say they, actual obstruction seldom happens; the boats obstructed are few in number; the height of their chimney is unnecessary and ought to be reduced; they may be lowered by machinery in order to pass the bridge, or other substitutes for the draught of their furnace may be



provided. The right of these defendants to obstruct any boat, at any time, upon any stage of water, or to require the provision, substitution, or use of any machinery in order to navigate the river, is a question which for the present is waived, in order to meet the defendants upon the very ground themselves have chosen.

*First*, as to the frequency of obstruction. The height of the boat and the elevation of the bridge being fixed, it would seem that the frequency of obstruction might depend upon the stage of water; but it is shown by the Commissioner's Report, that the New Orleans boats and the Pittsburg and Cincinnati packets cannot pass upon *any stage of water*; because, when the river is below fifteen feet, although there may be plenty of water for them to navigate, the high part of the bridge cannot be reached, it being not over the channel, but east of it, and over what in a low stage is dry ground. Not until the river is 15 feet can the apex of the bridge be reached, and then the space between it and the water is by so much diminished. It is also shown by the regimen of the river, and by 12 years' observation at Wheeling, that floods from 30 to 33 feet are of ordinary occurrence there—happening each year, often more than once in a year, and liable to occur in any month. And at such seasons, even the St. Louis boats cannot pass with their chimneys standing. The obstructions are not, then, seldom, but frequent, and to some classes of vessels, of daily occurrence through the navigating season.

As to the number of boats obstructed. The Pittsburg and Cincinnati packets are seven in number. Compared with all the craft upon the river they may be regarded as few; but so are the Atlantic steamers few in number compared with all the shipping of New York; and yet to obstruct those steamers would more seriously injure commerce than to obstruct a thousand of the common craft that float upon the bay. What the Atlantic steamers are to foreign commerce, the Pittsburg and Cincinnati packets are to the inland commerce upon the Ohio river. They are, as it has been said, the largest vessels that navigate between the Falls and Pittsburg. They are the carriers between the two principal commercial points upon the Ohio river, and the only daily line of packets between the two largest cities of the west. Each packet makes 60 passages in a season between Pittsburg and Cincinnati, carrying each time over 200 passengers and 300 tons of freight. By those acquainted with their business and the commerce of the river, it is estimated that

merchandise and produce exceeding \$50,000,000 in value pass annually to and from Pittsburg in steamboats along the Ohio, and more than 200,000 passengers. Of this, three-fourths of the travel and one-half of the trade is carried by the Pittsburg and Cincinnati packets. The correctness of this estimate is questioned by no witness. An obstruction, then, to these seven packets, is to obstruct one-half of the immense trade and three-fourths of the travel upon the Ohio river. Besides, there are from 30 to 50 packets engaged in trade between Pittsburg and St. Louis, and 25 boats annually make transient trips from New Orleans to Pittsburg. These, in their present dimensions, may be occasionally obstructed upon high water. But, as has been seen, the present dimensions of these packets is owing to the necessity of their having to pass around the Falls, through the limited locks of the Louisville canal, and it is shown by the proof that the same power which propels these small boats with 500 tons from St. Louis to Pittsburg, would propel a vessel 250 feet in length and carrying a thousand tons, and that hence any enlargement of the Louisville canal, or any improvement of navigation that would admit the passage of larger vessels than at present, would lead to the construction of vessels for the Pittsburg and St. Louis, and Pittsburg and New Orleans trade, of the same dimensions as the Cincinnati packets; for these packets have demonstrated the practicability of navigating the upper Ohio by vessels of their size, and their superior advantages for commerce. The Wheeling Bridge, therefore, creates a perpetual obstruction, which would render abortive any improvement of the navigation at the Falls.

It is said the height of these packet chimneys is unnecessary, and they ought to be reduced. The fact that they have increased from smaller dimensions to their present size would seem to be good evidence of their necessity. The existence of commerce depends upon the means of transport. Whatever will contribute to the safety, cheapness and speed of transport is necessary to commerce. The Pittsburg and Cincinnati packets are the transporters of commerce upon the Ohio river, and are propelled by steam-power. If, therefore, their chimneys at their present height contribute to the production of that power they are necessary. (This necessity is shown by experience and by science.) Wherever a considerable portion of mankind in the pursuit of the same object, after long and varied experience are found invariably employing the same means,



that is the most convincing proof that such means are essential to the end. Steam-power has been applied to navigation upon the ocean, upon the lakes, upon the eastern and upon the western rivers; and wherever we find it and observe its history, it is there discovered that steamboat chimneys from small dimensions have been steadily increasing in their height, and of late years, along with the advance of science, with great rapidity. The most perfect application of steam to navigation the world has yet witnessed, is doubtless to be found in the Collins' Steamers. And yet we are told by Messrs. Howell & Copeland who built the engines of these vessels, that their chimneys are 70 feet above the flues, which, if their engines were placed above the deck, as in the western boats, would make them from 80 to 85 feet above the water—higher than the tallest packet chimneys, and this notwithstanding the difficulty of staying high chimneys so as to withstand the tempests they must encounter, which, it is said by the same persons, is the only reason why they have not been carried 20 or 30 feet higher. From the same and other witnesses we learn that the hurricanes upon the lakes have not kept the chimneys of their best packets below 60 or 70 feet, and notwithstanding the gales upon the coast and the sound, the chimneys of their best packets reach to the same, or a greater height. Passing thence to the more placid navigation of the Mississippi, where from the greater length of their boats and their flat bottoms, high chimneys may more readily be stayed, we find the chimneys of the best packets reach from 85 to 95 feet above the water—there, where no hostility can be imputed to Wheeling or the Wheeling Bridge, but where the sole and apparent motive is, as in the Collins' Steamers, the application of the best means known to man for successful commerce.

It is further shown in proof, that two years before the Wheeling Bridge was chartered, packets were daily engaged in navigation between Pittsburg and Cincinnati, with chimneys 84 feet above the water, being as high as those now engaged in the trade. If anything could add to the weight of these facts, it would be the combined testimony of the most skilful engineers, engine-builders, captains, pilots and boatmen upon the Eastern and upon the Western waters, over seventy of whom have been examined, and all bear witness, as the result of their observation, that high chimneys increase the draft of a steamboat furnace, thereby promoting the consumption of fuel, the generation of steam, and the speed and power of the boat. The

most abundant and varied experience, then, seems to show the necessity of high chimneys for the purpose of steamboats. But if we demand of science why this is so, who can better interpret her than Professor Renwick, whose science, guiding the construction of the engines for the Collins' steamers, enabled them to win their proud triumph? He answers, that this result follows from plain and well-established principles of natural philosophy, and depends upon the very nature of things. Without here entering upon the learned and convincing demonstration of the men of science who have been examined upon this subject, all of whom agree in their principles and in their results, it is sufficient to say—that it being established as a scientific principle and a practical fact, that the power of an engine depends upon the quantity of steam generated in a given time, and that this quantity is measured by the amount of fuel consumed in the same time, and that to consume the required amount of fuel upon the limited grate bars and fire surface of a steamboat, demands that large quantities of air should pass with great velocity through the furnace, and that this is accomplished by high chimneys, in accordance with a law of nature, by which the velocity of draft depends upon the difference in weight between the column of air within the chimney and an equal column without. The question is then propounded: "What is the best and most effectual means known to science of procuring a maximum of power with the light draft and limited furnace of a steamboat?" Professor Renwick answers—"By high pressure engines, boilers such as are used upon the Western boats, and chimneys as high as can be stayed upon the vessel." The same answer is given by Professor Byrne, by Edwin F. Johnson, by Mr. Howell, Mr. Copeland, Mr. Curtis, the Inspector of Government engines in New York, by Colonel Long, the Government Superintendent of Western River Improvements, and by Dr. Locke. The two witnesses last named, Colonel Long and Dr. Locke, add to their science an intimate knowledge of the regimen of the Ohio river, the exigencies of its navigation, the structure of its vessels—and their attention for many years has been devoted to the practical application of steam to its navigation. From the same witnesses we learn, moreover, that the utmost height at which these advantages are attainable has not yet been reached by any steamboat chimney. What that height is, has not been clearly ascertained, but it is known not to be short of 100 feet. Whether, then, we follow

the lamp of experience, or the light of science, we are led to the same result—that high chimneys being essential to the production of that power by which commerce is transported, they are necessary, and, in the language of the Commissioner, “cannot be dispensed with.”

But, it is said, these chimneys may be lowered by machinery, in order to pass the Wheeling Bridge. A packet's chimneys measure from four to five feet in diameter, and from thirty to fifty feet above the deck, and they weigh, the pair, 8,000 pounds. In order to pass the bridge, they must frequently be lowered even with the deck. Now that it is within the compass of mechanical power, under favorable circumstances, to raise and lower masses of any given form and dimensions, is not denied; but that these chimneys can be raised and lowered with safety, without expense and without delay, under the circumstances in which the packets are placed at the Wheeling Bridge, are conditions the defendants must establish; for, by their own admission, upon these conditions does the fact of obstruction depend. Upon this question, also, science has been interrogated, and the question propounded—“How can such chimneys be raised and lowered with safety and convenience?” Professor Byrne answers—“It cannot be done.” The same answer is given by Professor Renwick, Edwin F. Johnson, Mr. Howell, Solomon W. Roberts, Colonel Long, and Dr. Locke. Twenty years' experience in raising and lowering chimneys of less dimensions, to pass the bridge at the Louisville Canal, has enabled Western boatmen to answer this question, and they all answer with one accord—it is tedious, troublesome, expensive, dangerous to property, and hazardous to life.

Reason confirms their statement, that these dangers increase with the weight and magnitude of the chimneys to be lowered, and are greater upon the open river than within the canal. The expense imposed upon the packets in requiring their chimneys to be lowered in order to pass the Wheeling Bridge, may be reduced to an accurate calculation; and the dangers encountered in the operation have been manifested by numerous occurrences at the bridge, during its brief existence. The expense consists chiefly of three items—the cost of chimneys, the cost of apparatus, and the time lost in the operation. A packet's chimneys cost \$1,000; if not required to be lowered, they will last five years, but if lowered, they will last only half that time. An extra pair of chimneys, costing one thousand

dollars, is, therefore, the first item of expense. The apparatus to lower them consists of hinges, iron bars for stiffening, ropes and chains, guy-rods, block, tackle, and the like, weighing 6,000 pounds, increasing to that amount the weight upon the vessel, beside lumbering the deck, and costing \$400. This constitutes the second item. The time lost in the operation is variously estimated at from one to three hours—one hour being the minimum.

Taking this minimum, a calculation is made by Colonel Long, predicated upon the prime cost, daily outlay and duration of the boat, by which it is ascertained that the value of time lost on each occasion that the chimneys are lowered is \$8.33. Each packet passes the bridge sixty times in the course of a season, and some of them are compelled to lower their chimneys every time, and the others only avoid it by reducing the height of the chimney, which occasions an equal loss, spread over the whole trip instead of being concentrated at a single point. An annual tax of \$499.80 is therefore imposed upon each boat, amounting in five years to the sum of \$2,499, which, added to the cost of chimneys and apparatus, makes the taxation in five years \$3,899 upon each boat, being thus a tax upon the seven packets in five years amounting to \$24,293. The danger may be estimated when it is stated that chimneys measuring from four to five feet in diameter, and from 30 to 50 feet above the decks, are to be lowered in the narrow space upon the sloping and unsteady deck of a steamboat, sometimes slippery with ice, and often in the wind and darkness of a winter's night. To perform the operation requires the labor of from 15 to 20 men, usually green and unskilful hands. Ignorant of their duties they may mistake their orders; in personal peril they may lose their presence of mind. If a rope breaks or a guyrod gives way, the chimney may fall in their midst. If the crew escape, the passengers are still liable to be crushed in their berths and cabin below. These are the ordinary dangers. Another is the risk of explosion. When the engineer, Mr. Johnson, mentioned explosion as one of the dangers incident to this operation, he only stated what is known to every one acquainted with the construction of these vessels and the nature of steam. After a day's run from Pittsburg, boats reach the Wheeling Bridge with heated boilers and a strong head of steam. In order to lower their chimneys and pass the bridge with caution, the engines must be stopped, thereby cutting off the supply of water to the boilers. This



is ordinarily but for a short time; but mistaking the height of the water, or failing to reach the high part of the bridge, wreck by collision if the engines are started, or by explosion if they are stopped, are the risks to be encountered.

Another circumstance greatly increasing this hazard will be readily understood by those of the Court who are accustomed to travel upon the Ohio river. It is known that some of the most frightful disasters there have occurred while the boat was landing, or leaving the shore. This, in some instances, has been attributed to the circumstance that by the passengers crowding to one side of the boat, or by some other cause, the vessel loses its trim and is careened to one side, thereby emptying the water out of one boiler, leaving it in the meantime exposed to the action of fire. When the vessel regains its trim, collapse of flue or explosion of the boiler ensues. Now when we consider the great weight and vast leverage of these chimneys, it is apparent, unless they be raised and lowered in a direct line, the vessel must be careened to one side. If, in that position, the chimney is caught by the bridge, as in the case of the *Hibernia*, or, torn from its fastenings falls to one side, as in the *Keystone* and *Cincinnati*, there must be the most imminent danger of explosion. That such result did not ensue in these instances, is doubtless to be attributed to the fact that the vessels were then new, and all things stanch, stout and strong as skill, art and materials could make them. But after the boilers have been weakened by the action of fire, and the strength of the tackle impaired by exposure and use, a different result may be apprehended—and this danger increases each year with the use of the boat. As it is apparent then, that to reduce the height of chimneys, is to impair the fitness of the boat as an instrument of commerce, so, to require their chimneys to be lowered in order to pass the bridge, is to expose commerce to oppressive tax and dangerous conditions.

These evils are not diminished by any of the expedients suggested in lieu of high chimneys. Three have been mentioned—the steam-jet, steam-blower, and the fan-blower. The steam-jet is to discharge into the chimney the exhausted steam after it has passed the cylinder, by its mechanical force to give greater velocity to the air within the chimney. The short and frequent stroke of the locomotive renders this an available, and indeed highly useful expedient in that engine; but the long and slow stroke of the marine engine makes it



wholly inapplicable to steamboats; and hence, after repeated experiments for steamboats, this expedient has been found useless. The steam-blower is to discharge into the after-end of the flues a portion of the steam withdrawn from the boiler, operating like the steam-jet, by mechanical force accelerating the air in the flues. But this method has been found subject to three serious evils. First, the tubes through which the steam is injected are liable to be burnt off by the intensity of the heat within the flues, the steam thereby wasting to no purpose. In the second place it consumes the motive power which it is the object of combustion to produce, and is therefore a sacrifice of the result for the process—the end for the means. And hence it is that Professor Renwick, and others of the scientific witnesses, regard the loss of motive power as greater than any gain in the draught. Besides, the injection of steam and water upon the heated surface of the flues has been found to corrode them, weaken the iron, and render them liable to collapse.

By the fan-blower atmospheric air is forced through the furnace. Where anthracite coal is used, this is found a useful and sometimes necessary expedient, in order to ignite the fuel; but for wood and bituminous coal it is subject to great and paramount evils. In the first place being unnecessary to ignite such fuel, the blowers are an useless expense, costing \$400, and requiring an extra engine, costing \$1200, to work them, besides increasing the weight on the vessel. Their use is also troublesome and annoying—consuming motive power that might be employed for the propulsion of the boat, and demanding the care of the engineer, they withdraw his attention from other duties. Like the steam-blower, they have been found destructive to the boilers, increasing the hazard of explosion, and greatly adding to the risk of destruction to the vessel by fire. Instances of the loss of vessels from this cause are mentioned by the witnesses. Long before the erection of the Wheeling Bridge, all these expedients had been tried upon the Ohio river, condemned and abandoned. To require them now to be resorted to, as expedients for passing the bridge, is to confess it an obstruction of the most serious character, which, besides expense, exposes commerce to danger in the most appalling form—explosion and fire.

In view of these facts, then, the Commissioner could not arrive at any other conclusion than that the Wheeling Bridge is an obstruction to navigation, and that it ought to be elevated. The reasons

assigned by him are demonstrated by science, and confirmed by abundant experience.

With these observations, I pass from the defendants' exceptions to those of the complainant. These relate to sail vessels, and the proposed change in the structure of the bridge. Before the introduction of steam upon the Ohio, ships masted and full-rigged were accustomed to be built at Pittsburg, freighted with produce, and cleared for foreign and domestic ports. After the general application of steam to navigation, instances of the same kind occurred, and within late years, masted ships for commerce, and for the war and revenue service of the Government have been built at Cincinnati, Marietta and Pittsburg. In all the materials for ship-building, the country bordering upon the Ohio abounds to an unexampled degree. In timber, iron, copper, coal, artisan skill, and cheapness of labor, Pittsburg is unsurpassed by any other port. Ordnance and munitions of war are largely manufactured there for the Government, unsurpassed in quality of material and workmanship. The Congressional report upon commerce and navigation shows that more steamboats are built there than at any other port upon the continent. Experience has shown that ships may be built there, equal in quality, and twenty per cent. cheaper than at any Atlantic port; for which reason, enterprising shippers have sought Pittsburg—there to build ships for commerce between Alexandria and New York, and sea-going vessels to navigate the Spanish Main and South American rivers. The importance of these facts in a national point of view, years ago, attracted the notice of the General Government. In 1840, the attention of Congress was called to the subject, by the Secretary of War, Mr. Poinsett, from whose report, with permission, I will read a short extract.

*Extract from the Report of the Secretary of War, dated*

WAR DEPARTMENT, December 5, 1840.

“For the maritime frontier of the Gulf of Mexico, I would recommend, in addition to the permanent fortifications planned for its defence, and now being erected, the establishment of a depot somewhere below the falls of the Ohio, for armed sea steam vessels. This would seem to furnish the best means of bringing the vast power of the upper country to the defence of the coast, and of using it when there in the most efficient manner. A certain number of steam

vessels of war might be kept in constant readiness, strong enough to carry a good battery, and light enough to descend the river at all seasons, and to cross the bars of the Mississippi. These boats ought to be of iron, as combining lightness, strength, and durability; and might be constructed of the requisite size for about \$50,000 each. Materials should be collected for the construction of boats to be built of wood and stored until wanted; when, with the vast resources in workshops and mechanics along the shores of the Ohio, they might be put together in a very short time, and a fleet equipped and manned with the hardy boatmen of the Western waters, and a few able bodied seamen, might be floated to the ocean, fully equal with the existing and contemplated fortifications, to protect the whole Gulf frontier. \* \* \* \* \*

To the President.

J. R. POINSETT."

The arguments by which these views were urged upon Congress, will also be found stated in brief, from which I will read a single passage.

*House of Representatives.—Navy Appropriation Bill.*

FRIDAY, February 26th, 1841.

Mr. Hawes said—It is a most painful reflection, that our extended coast is to a great extent defenceless, and all our navy yards and depots at the mercy of a sudden foreign assault, especially an assault which may be dashed upon us by the rapidity of steam power. But of all our coast, that of the Gulf of Mexico was the most unprotected and defenceless. Suppose even a small naval force of a foreign enemy in the Gulf of Mexico, and what would be the condition of the commerce of all the valleys of the Mississippi. He invoked the attention of gentlemen, whose constituents are interested in the trade which passes through the Gulf of Mexico, to this alarming condition of things.

Gentlemen from the East seem to consider a navy and naval armaments, as indissolubly associated with salt water. Such in times past had been the case, but the mighty power of steam must break this old association. It is now the confident belief of those who are well informed on this subject, that a steamship with a draught of ten feet of water and four large guns may be an overmatch for a ship of the line drawing twenty-five feet of water, and with one hundred and twenty guns.

Mr. H. said, that a leading consideration, which should induce us to establish navy yards and depots on the Ohio river, was the entire security from foreign attack. If you have a navy yard on the sea or gulf coast, an indispensable precaution was a strong fortification to protect it, and a force to man that fortification. The expense of one of these coast fortifications would not be less than three millions, to say nothing of the force to occupy it. But on the Ohio river, you are in the heart of the country and in the midst of a patriotic and brave people; when an enemy can tread that soil you may submit as a conquered people. The very cost of one fortification would go very far to give you a respectable force of steamships.

At Pittsburg, at Cincinnati, at Louisville and New Albany, there are now ship carpenters, foundries and manufactories of steam engines. It is of importance that government should direct the skill and energies of the workmen at these points in the construction of steamships. The valleys of the Ohio and its tributary waters abound with iron and coal, and if a ship is never built on the waters of the Mississippi, there should be depots of coal near the mouth of that river and on the Gulf coast.

Gentlemen who are unacquainted with the valley of the Mississippi, might suppose that there is not water to float steamships, but every one acquainted with the subject knows that there are many tides (freshets) in every year which would give ample water to float any vessel to the Lower Mississippi which can pass the outer bar of that river.

Similar recommendations have from time to time emanated from the War Department. The following extract is from the Secretary's Report of 1844:

*Extract from the Report of the Secretary of War, dated*

WAR DEPARTMENT, November 30, 1844.

"If our naval force on the Gulf should only be furnished from the seaports on the Atlantic, which for a long time was admitted to be the case, such a fact, notwithstanding the acknowledged prowess and devotion of that national arm of defence, would, inevitably, have been the destiny of a garrison on the Dry Tortugas. A report from this Department to the Executive, on the 5th of December, 1840, was the first official announcement that our Government had discovered its possession of other elements of naval power. Its ex-



istence had attracted your attention, and has since been recognised by Congress in the establishment of a naval depot at Memphis, with the wise forecast to bring into harmonious action with the permanent fortifications for the defence of the Gulf coast, the maritime resources of the great West and Southwest. It cannot any longer be doubted that we can, at will, by the union of the engineer's work with this new succor from the Mississippi, become the strongest naval power on the Gulf of Mexico, which is emphatically '*our own sea.*' While making allusion to our possession, upon the Western waters, of elements to be employed in the defence of the Gulf of Mexico, I am justifiable, in regard to the union of action of the two military powers of the country, in suggesting the expediency of forming in ample time, depots of coals for the supply of such armed steam vessels as may be employed upon the coast.

"WILLIAM WILKINS, *Secretary of War.*

*"To the President of the United States."*

These recommendations have been followed by the establishment of a Navy Yard and Naval Depot at Memphis, a short distance below the mouth of the Ohio, and by the construction of war vessels for the government at Pittsburg. Late events in our foreign relations with Cuba and upon the Gulf give to these facts a deep significance. In case of war with a maritime power, the ship-yards and workshops at Pittsburg and along the Ohio would be looked to with anxiety for the protection of the Southwestern States, the coast and commerce of the Gulf. With free navigation to and from these ship-yards the navies of the world may be defied. But to the passage of ships and war-vessels, with their masts and chimneys standing, to and from Pittsburg, the principal ship-building port west of the mountains, the Wheeling Bridge now offers at all times an impassable barrier.

At an early stage of this case the Commissioner was of opinion that inasmuch as ships built at Pittsburg were usually towed by steam to the Gulf, never to return, and as steam for commercial purposes had in a great measure superseded all other modes of navigation, sail vessels could not properly be regarded as engaged in the commerce and navigation of the Ohio river. Having changed that opinion, he afterwards returned to it, and has accordingly reported that the Wheeling Bridge is not an obstruction to sail vessels, as-



signing, as an additional reason, that such vessels, after passing the Wheeling Bridge, may ship their masts at ports below. But this reason gives no strength to the Commissioner's opinion; for, at most, it goes only to the degree of injury—reducing it from a total to a partial obstruction. It confesses the creation of a necessity by the bridge for ships built in the ports of Pennsylvania to leave those ports in an unfinished state and re-enter the ports of other States—there to be finished, enrolled, licensed and cleared.

The testimony of ship builders shows that it is always more convenient and cheaper to ship masts where the vessel is built; and Mr. Woodward, of New York, states that, by shipping masts at New Albany, instead of Pittsburg, where his ships were built, occasioned to him a loss of from \$5,000 to \$10,000, and that, although Pittsburg affords greater advantages for ship building than any other point upon the river, he would not establish a ship-yard there with such an obstruction below as the Wheeling Bridge. The opinion of the Commissioner, moreover, proceeds upon too narrow a construction of the order of reference. It directed a report whether the Wheeling Bridge was an obstruction to vessels engaged in commerce and *navigation*. The term *navigation* does not require that the vessel should continue to ply between ports upon the river, or that it should pass over the channel more than once; but only that the river be the highway through which the vessel must pass to reach its destination. By parity of reasoning it might be claimed, that no man travels a road who does not pass over it more than once, or return by the same path to the place from whence he started. Neither does the term sail vessels imply that their canvas should always be spread, or that they should, under no circumstances, be impelled by any other agent than the winds. The shipping of New Orleans is towed by steam 100 miles from the Balize to that port, and returns by the same means, or by force of the current. Ships are towed to Natchez and to Memphis, 800 miles from the Gulf, and return by the same means, or by force of the current. And we have seen that the Naval Depot was established at Memphis, a short distance below the mouth of the Ohio, with direct reference to the construction of ships upon that river. When a vessel moves upon the water she is engaged in navigation. If she have the simple and appropriate machinery to be impelled by the winds, she is a sail vessel. When, therefore, ships built at Pittsburg descend the Ohio

river with their masts standing, towed by steam or impelled by the current, they are sail vessels engaged in navigation, as much as when afterwards, with their canvas spread, they plough the waters of the Gulf. Inasmuch, then, as ships have been, and, unless prevented by the Wheeling Bridge will continue to be, built at Pittsburg, and passing along the river as the highway to their destination, are obstructed by the Wheeling Bridge, it is an obstruction to sail vessels as well as to those propelled by steam.' And in this respect it is claimed the Commissioner erred in his decision.

The proposed change in the structure of the bridge remains to be considered. By the order of reference that change was directed to be such as would secure free navigation to vessels which are now or hereafter may be engaged in the commerce or navigation of the Ohio river. Freedom of navigation, free now, and free in the future, were the conditions of change indicated. Freedom of navigation implies the absence of any restraint or condition not imposed by nature, whether created by physical instruments, or by legislative enactment, impost, tax or duty. It applies alike to the channel, the vessel, and the impelling agent, the use of which in their combination constitutes navigation. Freedom of the channel implies the use of its surface at whatever elevation, width, or depth may be presented. Freedom of the vessel implies such form and dimensions as in the judgment of the navigator may best accomplish his purpose. Freedom of the impelling agent implies its use in whatever form or proportion may be best adapted to navigation. Such, plainly, was the free navigation contended for by Mr. Jefferson and the American Statesmen, at an early day, when they demanded of Spain the free navigation of the Mississippi, not only its whole length, from its source to its mouth, but the entire width of the stream. One reason is mentioned by Mr. Jefferson in his instructions to Mr. Jay upon that subject, that applies with equal force to the Ohio river, viz: That in seasons of high water, there are eddies along the shore, the use of which relieve the navigator from the necessity of stemming the current. And hence it is that the quickest trips which have been made between Pittsburg and Cincinnati, have been upon high water. Freedom to navigate the Mississippi its whole breadth, was demanded at the hazard of war, at a time when the States had not yet recovered from the weakness and exhaustion of their revolutionary struggle. At that hazard it was wrested from Spain, and

forms the fifth article of the Treaty of 1794, as it had formed a specific article in the Treaty of Paris of 1763.—10 *American State Papers—Instructions to Mr. Jay. Spanish Treaty of 1794. Treaty of Paris, 1763.*

The same import attaches to the resolution of Mr. Grayson, adopted by the Congress of 1786, declaring the rivers leading into the Mississippi to be common highways, and forever free. This resolution was designed, as appears upon its face, to be a perpetual engagement between the States in regard to the commerce and navigation of these rivers, without regard to the political relations that might exist between them, whether as separate sovereignties, confederated allies, or united States. It is one of those engagements which, by the sixth article of the Constitution, remains in force and binding upon the States in their present union, and would be binding upon their good faith, so long as at peace with each other, if the Union were dissolved to-morrow. The same signification belongs to the Legislative act of Virginia, of 1789, when Kentucky was erected into a State, and which, by the assent of Congress, became a compact between the States, declaring the use and navigation of the Ohio river to be free and common to the citizens of the United States. I., *U. S. Laws*, 189. This compact has been always recognized as valid and binding, and has been enforced by this Court in the case of *Green vs. Biddle*, 8 *Wheaton*, I., and such, it is contended, is the plain import of the order of reference, directing the Commissioner to inquire and report what change could be made in the structure of the bridge, so as to secure free navigation.

The natural channel between Wheeling and Zanes' Island is 980 feet wide. The elevation of the surface varies by the depth of the water from one to forty-five feet. Among the plans reported by the Commissioner, that which he especially recommends provides for a level width of 300 feet at an elevation of 120 feet above low water, and diminishing thence to 75 feet above high water. Waiving for the present any abstract claim of right, only the practical effect of these limits will be considered. For the passage of ships with their masts standing, requires a headway from 100 to 125 feet above the surface. For the passage of such steamboats as were engaged in navigation between Pittsburg and Cincinnati, before the erection of the Wheeling Bridge, a headway of 85 feet is required; and the largest vessels now building for the navigation of that river demand a head-

way of 95 feet. The proposed plan, therefore, will not allow the passage of ships upon any stage of water—will not allow the passage of such vessels as were engaged in navigation before the erection of the Wheeling Bridge, upon the highest stage of water; and it will not allow the passage of the largest vessels now in use, upon ordinary high water. And it is distinctly stated by the Commissioner that his plan has regard only to the present time, and makes no provision for any future increase in the wants or exigencies of commerce. While he has enlarged the area, he has not secured the freedom of navigation; for that provision does not secure free navigation which leaves it under known and certain contingencies—subject to restraints and conditions; and what will not meet present necessities cannot satisfy the just demands of a growing future.

The plan of the Commissioner is therefore a compromise between the rights of navigation and the interest of the defendants. Out of a tenderness excusable in him, he has stopped short of the present necessities of commerce. In this respect it is plain that the proposed plan is not consistent either with the terms of the order, the rights involved in this controversy, nor with that wisdom which judges of the future by past events. That larger provision might have been made is shown by the plan of Mr. Johnson, which proposes a level width of 400 feet at an elevation of 100 feet above high water; and also by two plans reported by the Commissioner for a level headway over the whole channel, 100 feet above the highest water. The expense of construction seems to have been the objection in the mind of the Commissioner to these plans; but such consideration can have no weight with a judicial tribunal called to decide a question of absolute right. No provision can secure the freedom of navigation with less limits than 100 feet above the highest water over the whole width of the channel. The necessity and propriety for such provision is manifested by State legislation upon this subject. Virginia, in the charter of this bridge, required it to be so built as not to obstruct steamboat navigation upon the highest floods heretofore known. Kentucky and Indiana required the bridge over the Falls at Louisville to be so built as to admit the passage of ships, schooners, sloops, steamboats and other water craft of the largest size and height upon the highest water in the river. The bridge at St. Louis was required to be built so as not to obstruct or impede ships or steamboats. The bill introduced into the House of



Representatives, in Congress, for a bridge at Wheeling, reported by a citizen of that town and recommended by the Committee on Roads and Canals, required the bridge to be so built as to admit at all times the safe and easy passage, without obstruction or delay, of steamboats of the largest dimensions. The State of New York required the Croton Aqueduct to be carried, at a vast expense, 100 feet above the high water mark of the Harlem river. And upon a late occasion it is known the English Admiralty required a railroad bridge to be carried, at the expense of many millions of dollars, 100 feet above high water the whole width of a strait of much less commercial importance than the Ohio river; and no instance can be found of any suspension bridge in the world erected over a navigable river at a less elevation than 100 feet above high water, except the Wheeling Bridge.

The necessity, moreover, for such provision is manifest by the regimen of the river—its commerce, and the probable improvements in its navigation. The Ohio river, from Pittsburg to its mouth, flows one thousand miles, its water being supplied along that course by numerous tributaries, draining a territory of 77,000 square miles. The supply of these tributaries being governed by no fixed laws known to us, can only be judged of by past events. When the flood of 1832 reached 45 feet at Wheeling, and 65 feet at Cincinnati, no man, wise or ignorant, imagined such elevation would ever again be witnessed by this generation. Yet four years ago the water attained within six inches of the same height at Cincinnati, and twice within that period has been within a few feet of it at Wheeling. From Pittsburg over twenty thousand miles of river coast is accessible to steamboat navigation. Upon these waters dwell a population of twelve millions, doubling every twenty-five years. To transport their bulky agricultural products to market, and bring back emigrants to fill the vast region of the West, steamboat navigation will always surpass any other mode in cheapness, safety and comfort. The commerce upon these rivers already employs 800 steamboats—increasing every year in numbers and dimensions. Another circumstance that adds weight to these considerations is the improvement of the navigation at the Falls. Twenty years ago, the Federal Government united with private individuals to improve the navigation of the Falls, and afford commerce the means of passing around that obstruction. Over a million of dollars were expended in the work,



it being designed to provide not only for the then existing necessities of commerce, but for its future increase.

The largest steamboat then existing did not exceed 100 feet in length, nor 40 feet in breadth, nor 30 feet in height. The length of locks was accordingly fixed at 182 feet, the breadth at  $49\frac{1}{2}$  feet, and the bridge over the canal was elevated 52 feet—a provision then deemed by the government officers and those engaged in the work, amply sufficient to meet the wildest expectations of the future increase of commerce. But in five years, boats had filled the locks, and they were compelled to build recesses in their sides for wheels; and to supply their power, they were obliged to add from twelve to fifteen feet (by a hinge) on their chimneys above the height admitted by the bridge—and from that day commerce upon the river has been struggling to enlarge the limits within which it is there confined. The evidence before alluded to, shows that the same engine which now propels a steamboat 182 feet long, from St. Louis to Pittsburg, with a cargo of 500 tons, would propel a vessel 250 feet long, carrying a thousand tons, and the experience of the packets has demonstrated the practicability of navigating the Ohio to Pittsburg with such vessels, with the same expense, with more profit to the owner, and with more accommodation to the public, than by the shorter boat. The opinion is therefore expressed by all the commercial men who have been examined upon the subject, without a dissenting voice, that by an improvement of the navigation of the Falls, large vessels will supersede all others now in use. The probability of such an event soon happening is manifested by the fact that the attention of the government has been directed to the subject, and a survey made in contemplation of such improvement; and a company has already been chartered, and its stock partly taken, to construct a canal around the Falls upon the Indiana side, admitting the passage of boats 400 feet in length, with unlimited headway. The President of that company expresses the opinion that this work will be completed within five years; so that unless the river be obstructed by bridges, a few years will witness its commerce carried on by the largest vessels that can float upon its surface.

It is suggested by the defendants, and the suggestion is countenanced by the Commissioner, that upon extreme high floods vessels would not leave their ports; but the proof shows that even in the flood of 1832, steamboats continued to navigate the river, and during

the flood of 1847, packets made their regular trips to Cincinnati; and Colonel Long states such floods afford the best opportunity for ships and large vessels to pass over the falls, on their way to the Gulf. In a long course of a thousand miles, when such floods do come, they will find many boats pursuing their voyages, and if the banks be overflowed they must continue their course. Whether, then, we look to the opinions of learned and scientific men, whose duties have directed their attention to the subject, or to the opinions of official persons, like the English Admiralty called to consider this subject, or to Committees in Congress, or to Acts of State Legislatures, or to the past history, present condition, and future prospects of commerce upon the Ohio river, we are led to the same conclusion, that no provision will secure free navigation that allows an obstruction over any part of the channel of that river, at a less elevation than one hundred feet above its highest water.

Two objections addressed to the feelings are urged by the defendants, against any interference with their bridge. The first relates to the alleged beauty and magnificence of their structure, and upon that subject the language of hyperbole seems to be exhausted. But what is that to the purpose? The question here is not as to the beauty of the bridge, but as to its effects—not as to what are its merits as a work of art, but its result as a regulation of commerce. Let it be true, then, that this bridge does in splendor surpass the works of Babel and of Memphian kings—grant that not Babylon, nor great Alcairo, in all their glories, equalled such magnificence; yet it cannot be denied that it obstructs commerce upon a public river—that, to those engaged in navigation, it creates expense, imposes labor, endangers property, and hazards life—that while it may be a convenient appendage to a public road, it obstructs a national highway—that while it may afford a convenient passage for common travel and heavy teams ten hundred and ten feet, it arrests steamboats upon their voyage of a thousand miles—that while it may benefit the trade of Wheeling, it interrupts the commerce and obstructs the ports of Pennsylvania. But even the beauty of this bridge would be improved, rather than marred, by a suitable elevation—elevated as it may be with the same span, it will create stronger sensations of beauty and of power than it now does, while the unpleasant feelings arising from its present character as a public nuisance would no longer exist.

The second objection is the alleged hardship of requiring these defendants to expend more money in their enterprise. Men are sometimes influenced by considerations of pecuniary hardship, but such considerations never swerve the judgment of a judicial tribunal. Were this Court to allow such considerations in the present case to influence their construction of commercial rights and State compacts, and their disposition to enforce them, it would furnish occasion for a like course in other cases, here or elsewhere, and thus rights the most inestimable would become worthless, and compacts designed for bonds of peace, security and perpetual union, would be riven asunder. Besides, a party may place himself in such position as a wrong-doer as to prevent any consideration of the hardship of his case. And so stand these defendants. Years ago they were notified by the resolutions of Pennsylvania that any obstruction to the navigation of the Ohio by a bridge at Wheeling would be regarded as a serious injury, and as such resisted. Congress refusing to sanction their scheme, they hastened to the Virginia Legislature and obtained their charter. But upon its face was written the stern injunction to build their bridge so as not to obstruct navigation, under penalty of its abatement as a nuisance. In defiance of this injunction the bridge was planned, and that plan deliberately adopted, with full knowledge that it would obstruct vessels then daily engaged in navigation along that channel to and from the ports of Pennsylvania. Summoned to answer before one of the judges of this Court, they were again admonished that any obstruction to navigation was a violation of law, and that they must abide the penalty. Scorning that admonition they proceeded with their expenditure and completed the work, doubtless in the vain hope that their cables would prove stronger than the laws, their towers upon a surer foundation than the commercial rights of Pennsylvania. But even upon the score of hardship there is no ground of complaint. It is estimated by Mr. Roberts, a distinguished engineer, that \$50,000 additional expenditure in the outset would have elevated this bridge as high as it is now proposed by the Commissioner. After all the expenditures that will now be required, the bridge will cost less than was estimated by the Government Engineers in 1838 as the proper expenditure for a bridge at Wheeling. And it is demonstrated by the Commissioner, that when these expenditures are made, and the bridge elevated, it may still yield 14 per cent. to the stockholders;

and that at half the rates they are allowed to charge, and with no increase of travel, it will yield them six per cent., as much or more than any other merely local improvement affords.

This, too, is upon the supposition that it will only accommodate the travel of a common road. But if, as is claimed by these defendants, their bridge can be adapted to railroad purposes, then the question assumes a very different aspect. The expectation that Wheeling would some day become the centre of a vast system of railways has long been entertained by its sanguine citizens. This expectation has already, in some degree, been realized by their success in compelling the Baltimore and Ohio Railroad to extend a branch to their city, and the lively imagination of one of the counsel, who has submitted a printed argument in this case, already beholds the Pennsylvania Railroad entering from the East by the Hempfield connection, the Cincinnati and Belpre Railroad from the Southwest, the Central Ohio Railroad from the West, and a connection formed with the lakes and the North by the Wells-ville and Cleveland Railroad. In anticipation of this happy event, a calculation was submitted to the stockholders by Mr. Ellet, in his report, when this bridge was projected, showing what, under such circumstances, would be the revenue of this bridge. No one doubts Mr. Ellet's ability to make such calculation, and he proves by facts and figures that, under these circumstances, the annual income of the bridge cannot be less than 25 per cent. per annum, or, in his language, "one of the most profitable investments in the country." With such revenue in hand and in prospect, there is no hardship in requiring these defendants to remove their unlawful obstruction to the navigation of the Ohio river. That object forms the sole purpose of this suit. The imputations of unfriendly hostility and rivalry by Pittsburg or Pennsylvania towards Wheeling or Virginia, demand and will receive from me, no answer.

It is further insisted by the defendants that there is a necessity for commerce to cross over, as well as to pass along the stream, and that hence arises a conflict of right, in which navigation must yield. Such pleas, of necessity, are common; they are to be found in all the railroad cases reported; and in every instance where a corporation seeks to encroach upon public or upon private right they have some pretext of necessity for their excuse. Such pretexts have been by the English Chancery sternly resisted. But let the plea be re-



ceived, and observe its application to the present case. The Wheeling Bridge is built to accommodate the travel of a common road. Its engineer says it was designed and constructed for that purpose. The Commissioner and his engineer show it can be adapted to no other purpose. This case, then, does not present a contest between steam as a transporter upon land and steam as a transporter upon water. It is not a contest between a steamboat line and a railway train, but is a conflict between the travel that creeps upon a common road and commerce rushing through a great river—a conflict between horse-flesh and steam power, in which steam is ordered to halt on its mighty course, while the horse at his leisure walks by. The Wheeling Bridge having no part or lot in that great race for commerce, which is, now and hereafter, to be witnessed, between the boat and the car, the marine engine and the locomotive, yet demands a sacrifice of the greatest instrument of commerce known to man for the least—the river and its steamboat, for the road and its wagon. The manner in which this right of necessity has been exercised by the defendants is also worthy of notice. In all other cases where bridges have been thrown across navigable rivers, every precaution has been used to preserve navigation. Whatever would relieve it from expense, or contribute to its safety or convenience, has been strictly observed; thus, high spans and wide draws, pilots and lights, to be furnished at the expense of the bridge, are usual provisions.

At Wheeling, a high bank upon one side and a broad island upon the other afford to a suspension bridge the most favorable opportunity by towers and embankment of suitable elevation to accommodate travel with an easy approach and level transit, and at the same time to secure navigation from any injury. But this, it is said by Mr. Dickinson, one of the engineers who planned this bridge, would have been “expensive to the defendants,” and with great simplicity he informs us how many more perches of stone it would have taken for the towers, and how many more cubic yards of earth for the embankment; and that, therefore, it was cheaper for the defendants to start from the level of the bank at Wheeling and descend sheer to the island. Hence these low towers and this steep descent, affording to travel high grades it can barely climb over, and to commerce a narrow and uncertain space to pass through—presenting to the eye a form of structure never before witnessed, combining the qualities of a hill for the wagon, and a trap for the



boat. Neither by day nor by night is there any provision to relieve navigators from the perils that beset them. The high part of the bridge is placed not over the channel, but east of it. The use of the bridge has been denied to vessels arrested upon their voyage as a platform from which their chimneys might be cut off with more safety to the vessel and less peril to the lives of the crew. A lantern from the apex might have saved the Keystone from the disaster it encountered in the darkness of night. All things are made subservient to the interests of the stockholders, which they now call public necessity, without regard to the risk, labor or expense imposed upon others, and no matter at what sacrifice to commerce. The same necessity there is for such sacrifice at Wheeling exists to an equal or greater degree at innumerable points upon the river.

At Cincinnati and Louisville, the travel across must be ten-fold greater than at Wheeling. It may be equal at Maysville, Parkersburg, Portsmouth, Marietta, Wellsburg, Steubenville and Wellsville, where bridges are already chartered or projected. Encountering such conflict along its course, steamboat commerce must perish. If the convenience of common travel can give such right over river commerce, who shall judge when and how that right shall be exercised?—certainly not the defendants, for that would leave the existence of commerce subject to their will. Is the question to be decided by this Court upon comparison between the commerce of the road and the river? If so, the question is of easy solution. The Cumberland Road, of which the Wheeling Bridge claims to be an appendage, was once a national highway of much importance, but has long ceased to be so. Even in its palmyest day, the Government did not think it of sufficient consequence to risk any injury to navigation. It is now only a common State road, which its tolls will not keep in repair. Intercepted by steam and water transportation at West Newton and Brownsville, 50 miles from Wheeling, on the east, and at Zanesville on the west, it were idle to compare the merits of the road and the river as a highway of commerce. The relations between them are those of a wagon and a steamboat—the strength of six horses compared with the might of seventeen hundred, the measure of a packet engine's power. Must the right depend upon State authority? That were to subject commerce to State regulation and control, which has been declared by repeated decisions of this Court to be forbidden by the Constitution. If then, as is plain, the right can only be derived

from that authority which alone can regulate commerce between the States, then the question has been decided long ago—in the declaration that navigation shall be free; as also by the permitted freedom it has hitherto been allowed to enjoy.

It was as well known in 1786 as it is now, that commerce would require to cross over, as well as to pass along the stream. It was also known that a bridge was a convenient instrument for that purpose. But it was foreseen that the western rivers, flowing through territory soon to become independent states, pretexts founded upon some necessity, real or imagined, might furnish occasion to subject commerce to burdens and restrictions. It was known that by whatever means commerce is transported between distant points along the channel, the same vehicle, whether propelled by the force of the current, human strength, horse power, or the engine, was sufficient to convey it across from shore to shore; and that in the use of such means, no conflict could arise between commerce passing along and commerce crossing over the stream. The adequacy of such means is manifested at many points where the necessities for travel must exceed a hundred fold what Wheeling can ever hope for, as at New York and Philadelphia, where ferries afford ample means for travel across navigable rivers. The question as to the necessity of a railroad bridge over the Ohio, does not arise in this case; for as has been seen, this bridge was neither designed nor constructed for railroads, and can never be adapted to them. And, if it were otherwise, then their revenue would afford sufficient means to secure free navigation. Even in railroad bridges, all that science demands in order to secure navigation from any injury, is an adequate outlay of money. In such works there is always an immediate relation between their utility, and the outlay they will justify. If public good requires them, the public will cheerfully afford recompense sufficient for their proper construction. And, if in any case, the income will not justify such outlay, it is convincing proof that the work is not demanded for the public good, but for some merely local purpose. In no instance are commercial rights to be measured by the poverty and parsimony of a Bridge Company. There is then no necessity for a conflict at Wheeling between the travel crossing, and the commerce passing along the stream, nor could any such necessity overrule the paramount law that has declared that navigation shall be free. And no reason can be assigned to justify the

oppressive tax, and perilous duty imposed upon river commerce by the Wheeling Bridge.

The imposition of such tax and duties there has already furnished occasion for similar exactions at other places. The first bridge over the Ohio was projected at Wheeling. It was urged, in the first instance, upon the general government as a measure of national importance, demanded by the public good. After many years' importunity, Congress, in 1838, directed an inquiry and report upon the subject. Two engineers were detailed from the War Department for that purpose. In performing their duty they adopted a correct principle, but erred in some measure in its application—recognising the right of navigation to a free passage at all times, they measured the greatest known flood and the highest steamboat then existing. But without searching the cause that had led to that height, or inquiring whether improvement could go no further, they adopted that as their standard, and fixed the elevation of the bridge at  $94\frac{1}{2}$  feet above low water, but with a level headway 600 feet in width, providing at the same time means to elevate the flooring of the bridge, in order to allow the passage of a vessel, if necessity should require. Nine years afterwards this bridge was chartered. In the meantime steamboats had increased in numbers from 143 to 700; in size, from 100 to 250 feet in length, from 17 to 50 feet in breadth, from 30 to 60 feet in height; in speed, from four days' trip between Cincinnati and Pittsburg, to 47 hours; in capacity, from 100 to 900 tons, from scant accommodations for 28 passengers to ample provision for 200; and their chimneys keeping pace with improvement in other respects, had enlarged in their dimensions from 40 inches to five feet in diameter, and in length from 50 to 85 feet above the water. For this improvement Virginia had made ample provision, and had her injunction been observed, this controversy would not have arisen. But the engineer to whom the execution of the work was entrusted, when he sat down to plan his bridge, disregarded the injunction of the charter and the principles recognised by the government engineers, and assuming to be the arbiter of commerce, he neither looked forward to the future, nor paid any regard to existing things, but turning his eyes back to 1838, he saw that to provide for a steamboat of that day would save expense in constructing the bridge. He accordingly fixed the highest point of his bridge at  $92\frac{1}{2}$  feet above the water—two feet less than had been allowed in

1838, and that only at a single point, with no level headway, but diminishing thence by a rapid declination to 62 feet. This plan being submitted to the defendants, it is not to be wondered at, that their manifest interest in the saving of expense to themselves, led them to adopt it. Two years afterwards a bridge was projected at Cincinnati. For that a plan and report were submitted by the same engineer, which it is here said by the defendants' counsel was the means of procuring the charter from the Legislature of Ohio. In that report he urged the projectors of Cincinnati to fix the same limits for navigation that had been established at Wheeling, and accordingly the height of the Cincinnati bridge was fixed at 112 feet above low water—less than 50 feet above high water.

About the same time a bridge was projected over the Mississippi at St. Louis. For that also, the same engineer presented a plan and a report, he being one of the corporators named in the charter; and following the Wheeling rule, the elevation of this bridge was fixed at 85 feet above low water, as an adequate provision for ships and steamboats. Since that time a bridge has been projected at Louisville, and its elevation fixed at one hundred feet above low water. These bridges have all been chartered, and in some the stock has been taken, and the decision in this case is only waited for, to commence the work. Following the example of the Wheeling Bridge, like it, they derive their existence from State authority; they are planned upon the same plan, and stand upon the same right. Thus the Wheeling Bridge has become the rule of navigation upon the Ohio, the Mississippi, the Missouri—in short, the law of the Western waters—a law prescribed by private companies to regulate commerce between the States, the navigation of great rivers, the construction of vessels, the vehicles of commerce for millions of people, and for all time. Now, mark the operation of this law. The packets upon the Mississippi trading between New Orleans and St. Louis require a headway from 80 to 95 feet above the water. Between the highest point of the proposed bridge and the ground there is not room for them to pass. Above St. Louis the steamboat navigation of the Mississippi extends 749 miles; the steamboat navigation of the Illinois, 305 miles; the steamboat navigation of the Missouri, 2000 miles. From this navigation these vessels are cut off. Steam is excluded from those rivers, unless reduced to the condition of 1838, and such as may be imposed by this bridge. Passing thence to the



Ohio, steamboats running to Louisville require a headway of 85 feet. If that bridge be erected, they can never pass beyond it. At Cincinnati, where the river rises 65 feet upon ordinary stages of high water, packets from above and below cannot pass through with their pilot house and upper cabins.

Where then is Virginia, if the law of the Wheeling Bridge be established? Her steamboat commerce with the Missouri, Mississippi and the Gulf is cut off from Parkersburg, Guyandotte, Kanawha—from all her ports. Like Pennsylvania, she must be content with the steamboat traffic to be picked up between bridges, or that can pass under them in small boats. Suppose Virginia cares not for this result, but satisfied with the beauty of the Wheeling Bridge, and content with beholding horses and wagons pass over it from Wheeling to Zane's Island, she shuts her eyes to what passes upon the river, and with rare generosity leaves the rich spoils of commerce upon its waters to be gathered by her neighbors. What is the effect of commerce between the States? The maxim of Adam Smith, that it is the inland commerce upon navigable rivers, and not its foreign trade, that most enriches a State, is not at this day to be denied. Its truth is abundantly illustrated by the commercial history of this country. The effects of these bridge regulations upon this inland trade between the States may be seen by a single illustration. Two years hence, the Baltimore and Ohio Railroad will reach Parkersburg, having forced its way across the mountains with great expense and unwearied perseverance, in order to reach the steamboat commerce of the Ohio river. Suppose, then, a merchant desires to ship a cargo of Southern products to the Eastern seaboard; in seasons of high water he will see that by steamboat to Parkersburg, and thence by railroad to Baltimore, will be the safest, cheapest, and in many respects the best course. Selecting a large boat as best adapted to his purpose, he will ship upon the Magnolia, or a vessel of her class, 1000 tons of rice, sugar and cotton. In five days the vessel may reach Louisville; but if the bridge be erected there, it must stop. If the bridge be not erected, the boat may proceed 200 miles to Cincinnati, but if that bridge be there, it can go no further; for upon the high water that has borne it over the falls, supposing the chimneys could be lowered, as they cannot upon such boats, the pilot house and upper cabin may not pass under; and so the cargo having completed 1200 miles of its voyage, and within 200 miles of its



goal, must be discharged, as in the case of the *Hibernia* at Wheeling, and re-shipped upon smaller boats, to reach its destination.

Now, when it is considered that no sooner will the railroad reach Parkersburg than steamboats will be upon their way from New Orleans and St. Louis with their cargoes to be borne Eastward, and that in seasons of high water these will be the largest vessels; and that, if the Falls be improved, such vessels will supersede all others, the effect on inland commerce may be estimated. Again, by New Year's day, a railroad from the lakes at Cleveland will reach the Ohio river at Wellsville, forming the most direct communication between Boston and New York with the Ohio river. For the steamboat commerce that road has also been constructed; but it finds its commerce already intercepted by the Wheeling Bridge and another chartered at Steubenville, 20 miles above—two bridges within forty miles. For years New York and Pennsylvania, Virginia and Maryland have been striving with each other, straining all their energies, to reach the steamboat commerce of the Ohio river, so as to bear it upon their iron roads across the mountains to their Atlantic ports. For this commerce, their railroads have been built; upon it, they must depend for their support; and to reach it, millions have been expended. To obstruct the channel, or impede the boat, is, therefore, to injure the traffic of the road; for whatever expense, danger or delay steamboats may encounter in passing under low bridges, inclined planes or booms thrown across the channel to accommodate common travel, must fall upon the commerce, that has been, or is to be borne, by the car. So that railroads as well as rivers, are subject to the pernicious influence of these bridge regulations.

The effect of these regulations may further be seen by a glance at the great current of trade, between these States, and the course it runs. The products of the West and the Northwest, seeking an Eastern market, descend the Missouri, the Illinois and the Mississippi, to the mouth of the Ohio, where an ascending current is met coming from the Pacific, the Spanish main, the Gulf and the Coast, bound in the same direction. Joining there, these currents ascend together, to be distributed among the different channels along the Ohio, that may be selected for the journey across the mountains. Streams of trade returning from Boston, New York, Philadelphia and Baltimore, again meet upon the banks of the Ohio, and descend together to its mouth, there to separate into two branches, one ascending the Mis-

Mississippi, Illinois and the Missouri, the other descending to the Gulf and the Coast. The course of this trade is regular as the seasons and the tides, and has hitherto been as free as the elements it passes over. Thus the Ohio river is a channel, perhaps, the only inland channel in the world, where products from opposing ends of the continent and the globe, seeking their market, meet at the same point and journey together upon the same voyage, in the same channel, and often on the same boat. To preserve this channel for ever from obstruction, the States have entered into compacts with each other. To improve its navigation, the government has expended millions of money. To fit the vessel for its voyage and speed it upon its course, art, science and experience have labored with sagacity and unwearied toil; while the government has inspected its machinery, prescribed the duties of its officers, and placed its license in their hands. And now come these defendants and other bridge companies with their regulations for the channel, the voyage and the boat—regulations that obstruct the channel, impair the fitness of the boat for use, expose it to peril and disaster, and subject the voyage to expense, to danger and delay.

By these regulations steamboat commerce, that has enriched the valley of the Mississippi, filling it with vigorous life and abundant wealth, carrying the manufactures and merchandise of the Eastern states and foreign countries through the channels of great rivers to the far regions of the West, the Northwest, and the South, is forced back 14 years, shorn of the strength that art and science had in the meantime imparted, compelled to stand with diminished front where it stood in 1838, with bounds and limits set against its further progress at every port. And thus it happens that in this case, conclusions are joined between commerce and bridge companies. Upon the issue it must depend, now and forever, whether the rivers of the West are to be free for the wants of commerce, or are to be regulated and controlled by local corporations. These corporations have access to state legislation. It is in a measure under their influence and control. Hearing but one side, it must depend upon their interested statements, and can only guard against them, by general provisions that can seldom be enforced, within or by the State. Witness the fruitless provisions to secure navigation, in the charters for bridges at Wheeling, Cincinnati, Louisville and St. Louis. Had the facts of this case, and the effects of this bridge been fairly

laid before the Virginia Legislature, who, that knows the enlarged policy that has usually marked the counsels of that State, could believe that she would sanction a measure fraught with so much injury to her own eventual interests, and the rights of her sister States—that she would be so regardless of commerce upon the Western rivers as to force back the march of its improvement fourteen years, and binding steam in fetters, reduce its speed upon the water to accommodate the pace of an ox-cart, or a road wagon? And yet, for that object, this bridge was designed and constructed, and that end would be accomplished were it allowed to stand.

Upon a view of the whole case, I assume these propositions to be established by the Commissioner's report, and by the testimony :—That the Wheeling Bridge is an obstruction to the navigation of the Ohio river, by vessels propelled by steam and sails, which are now, or hereafter may be engaged in the commerce and navigation of the Ohio river. That to remove such obstruction requires the bridge to be elevated one hundred feet above the level of high water the whole width of the channel. That from this result, the defendants cannot shield themselves by appealing to the beauty of the bridge, the hardship to themselves, or any pretext of public necessity. And that such change is demanded alike by their own flagrant wrong, the interest of Virginia, the rights of Pennsylvania, and the security of commerce between the States.

The question of jurisdiction having been fully argued at the former term, a brief statement of the points of that argument will conclude my present observations upon this case. It is charged in the bill, and admitted in the answer that the State of Pennsylvania is the owner of public works, constructed as channels of commerce at vast expense, terminating upon the Ohio river—that the navigation of the Ohio river is essential to these works, and their value will be injured, and the revenue to the State diminished by any obstruction to the navigation of the Ohio river. The fact of obstruction being now established by the Commissioner's report, a case for relief is made out upon the ordinary ground of equitable jurisdiction to relieve against a nuisance. Besides, the freedom of commerce between the States from any State regulation or control is guaranteed by the Constitution. The equality and security of the ports of every State are guaranteed by the same instrument. These rights on the Ohio river have been confirmed by express compact between

the States. To enforce these compacts and secure these rights, the State of Pennsylvania appears now as a suitor in this Court. By reason of her quality and degree as a State, this Court has original jurisdiction of the parties. Its equitable powers are ample to afford relief. For that, amongst other purposes, this Court was organized, holds its high commission, and, with wise judgment and strong arm, wields the supreme judicial power of the Union. Upon these grounds, the fact of obstruction being established, the complainant asks to be relieved from the admitted injury suffered by her, and to that end that the defendants be required to elevate their bridge, or, in default thereof, that it be abated by the decree of this Court as a nuisance.

